



Enhancing Employability Skills Across Disciplines

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This material is based upon work supported by the National Science Foundation DUE-1801096. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.













**Dedicated to facilitating collaboration
between educators and employers
to improve the **employability skills** of
entry-level technicians in STEM fields.**

Today's Agenda

- Continuing workforce demand for employability skills
- NSN's approaches for integrating technical/employability skills
- Current faculty cohort shares recent experiences
- Round-robin sharing from everyone!
- FREE resources and chance to join NSN's spring cohort!




Top 10 skills of 2023

1.  Analytical thinking
2.  Creative thinking
3.  Resilience, flexibility and agility
4.  Motivation and self-awareness
5.  Curiosity and lifelong learning
6.  Technological literacy
7.  Dependability and attention to detail
8.  Empathy and active listening
9.  Leadership and social influence
10.  Quality control


Type of skill

 Cognitive skills

 Self-efficacy

 Management skills

 Technology skills

 Working with others

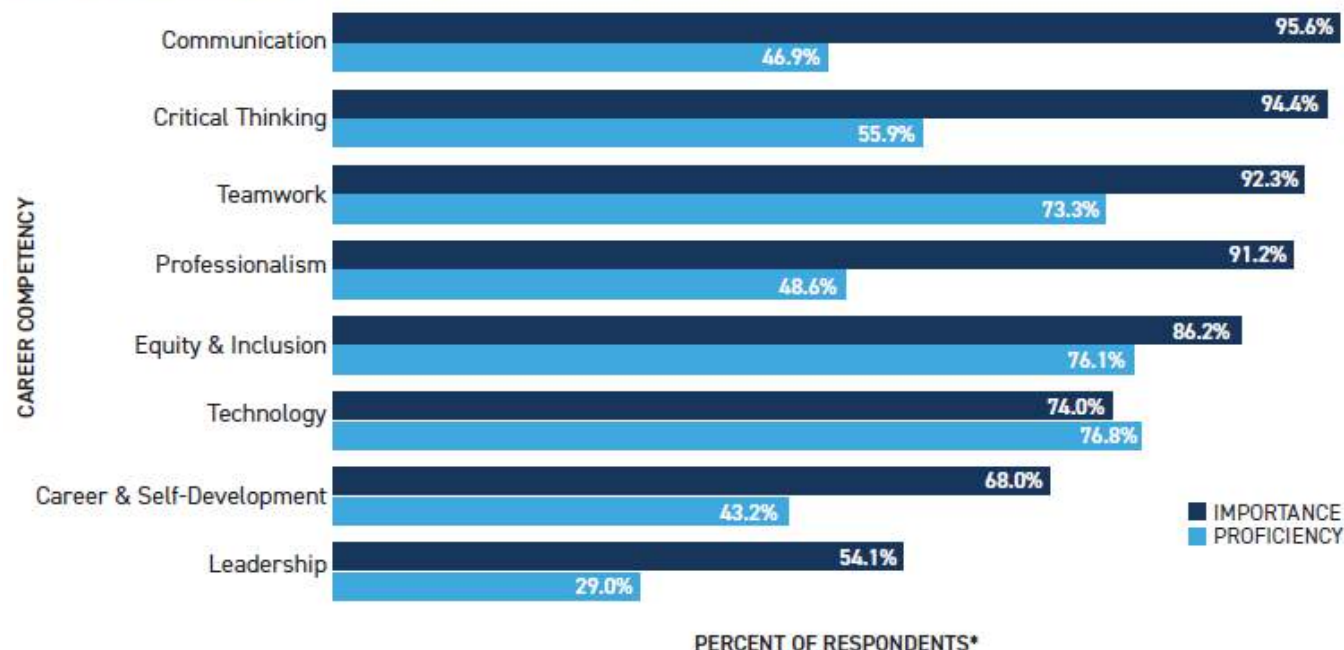
Source

World Economic Forum, Future of Jobs Report 2023.

Note

The skills judged to be of greatest importance to workers at the time of the survey

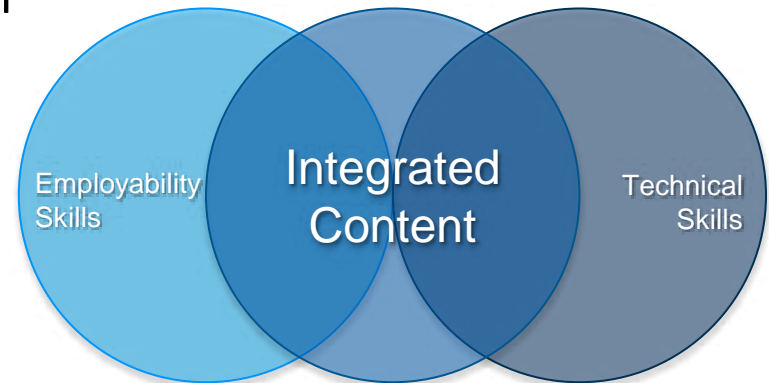
FIGURE 46: IMPORTANCE VS. PROFICIENCY ON CAREER READINESS COMPETENCIES, BY PERCENT OF RESPONDENTS



*The percentages corresponding to "importance" represent, among all responding employers, the percentage that, on a five-point scale, indicated that the respective competency was either "very important" (4) or "extremely important" (5) for college graduates to have to enter their workforce. The percentages corresponding to "proficiency" represent, among all responding employers, the percentage that, on a five-point scale, rated recent graduates either "very" (4) or "extremely" (5) proficient in the respective competency.

Necessary Skills Now: The Big Picture

- Evidence from both employers and researchers reveals a **lack of employability skills** in today's technical workforce.
- Community college faculty understand the woes of employers but have **no space in their curriculum** to add content.
- Necessary Skills Now (NSN) brought together **faculty** and **employers** to develop curriculum modules **integrating technical content and employability skills**.



Necessary Skills Now **Network**

- Created professional development programs to support faculty
- Help replicate NSN process in any STEM discipline



- Conducted focus groups:
What do you need? What would you use?
 - “Bite-sized chunks!”



Lessons Learned

- Adopt a workplace lens
- Identify priority employability skills for your discipline
- Start small – one lesson, one project
- Assess where you're already teaching employability skills and look for opportunities to enhance instruction and measure impact
- Advocate for employability skills instruction among colleagues



Current Mantras



- Integrate – don't isolate
- Present in bite-sized chunks
- Develop/practice skills *over time*
- Align employability skill development with students' personal brand/image



Inspiration from “Stacking the Deck”



USDOL Engineering Competency Model

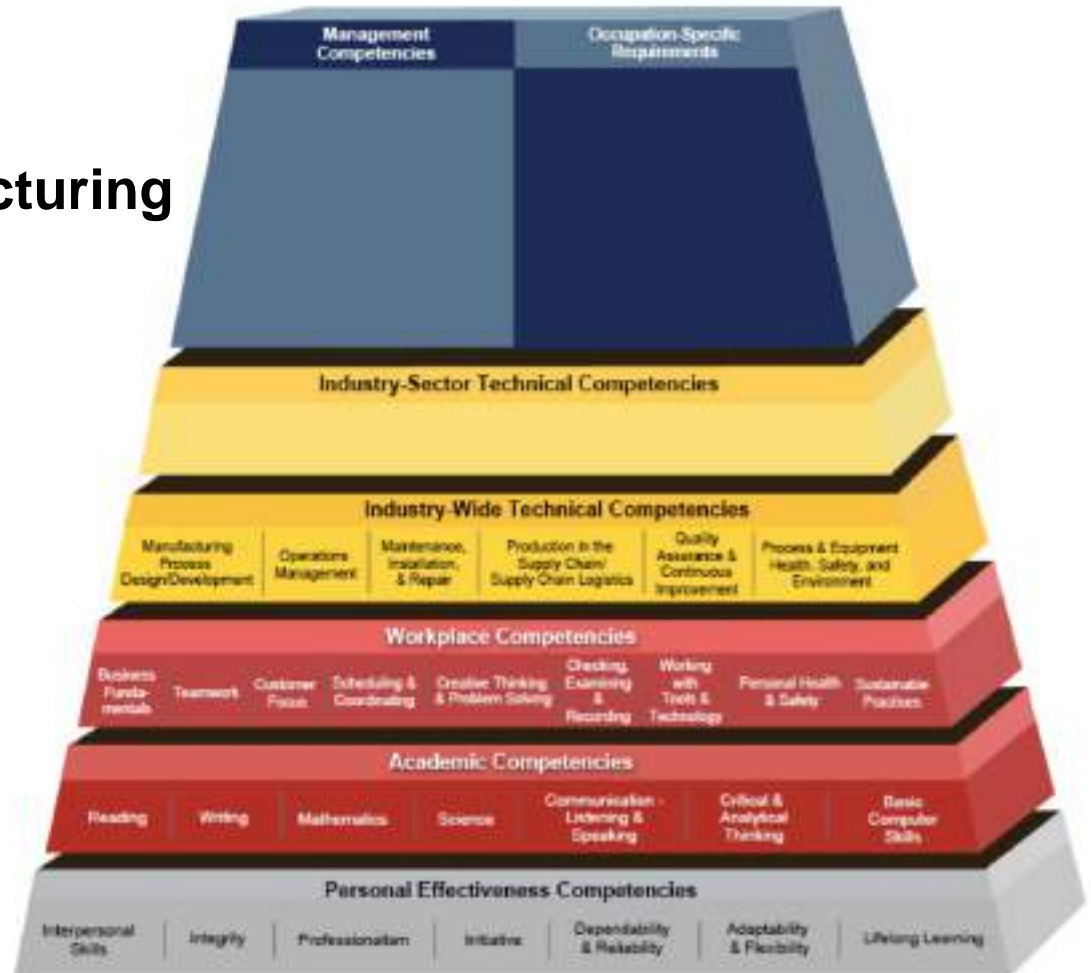


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RUSS COLLEGE OF ENGINEERING AND TECHNOLOGY
Create for Good.

A partner of the NSN Network

USDOL Advanced Manufacturing Competency Model



Engaging the BILT

Prioritizing What's Important



Employers Prioritized Competencies

| | Respondent 1 | Respondent 2 | Respondent 3 | Respondent 4 | Respondent 5 |
|--|--------------|--------------|---------------|--------------|--------------|
| Interact respectfully and cooperatively with others who are of a different race, culture, or age, or have a different ability. | Essential | Essential | Essential | Essential | Essential |
| Demonstrate sensitivity, flexibility, and open-mindedness when dealing with different values, beliefs, and attitudes. | Essential | Essential | Preferred | Preferred | Essential |
| Use appropriate strategies and solutions for dealing with conflicts and differences to maintain a safe and respectful environment. | Essential | Essential | Essential | Preferred | Preferred |
| Contribute to an environment that supports and accommodates a diversity of people and ideas. | Essential | Essential | Essential | Essential | Preferred |
| Take action to help people and deliver assistance. | Essential | Essential | Preferred | Essential | Essential |
| Show sincere interest in others and their concerns. | Essential | Essential | Preferred | Preferred | Essential |
| Demonstrate sensitivity to the needs and feelings of others. | Preferred | Essential | Not Important | Preferred | Essential |
| Demonstrate flexibility for change based on the ideas and actions of others. | Essential | Essential | Preferred | Preferred | Preferred |
| Accurately interpret to the verbal and nonverbal behavior of others. | Essential | Essential | Preferred | Preferred | Preferred |
| Respond appropriately when relationships with others are strained. | Essential | Essential | Preferred | Essential | Essential |
| Identify others' motives and consider them when formulating responses. | Preferred | Essential | Not Important | Preferred | Preferred |
| Maintain open lines of communication with others. | Preferred | Essential | Preferred | Essential | Essential |
| Establish a high degree of trust and credibility with others. | Essential | Essential | Preferred | Essential | Essential |
| Encourage others to share problems and successes. | Preferred | Essential | Not Important | Preferred | Preferred |
| Choose an ethical course of action and do the right thing, even in the face of opposition. | Essential | Essential | Essential | Essential | Essential |
| Encourage others to behave ethically. | Essential | Essential | Preferred | Preferred | Essential |
| Behave ethically beyond what the law requires. | Essential | Essential | Not Important | Preferred | Essential |
| Use company time and property responsibly. | Essential | Essential | Essential | Essential | Preferred |
| Perform work-related duties according to laws, regulations, contract provisions, and company policies. | Essential | Essential | Essential | Essential | Essential |
| Comply with ethical standards for your field. | Essential | Essential | Essential | Preferred | Essential |
| Accept responsibility for one's decisions and actions. | Essential | Essential | Essential | Essential | Preferred |
| Treat others with honesty, fairness, and respect. | Essential | Essential | Essential | Essential | Essential |
| Make decisions that are objective and reflect the just treatment of others. | Essential | Essential | Preferred | Preferred | Essential |
| Take responsibility for accomplishing work goals within accepted timeframes. | Essential | Essential | Essential | Preferred | Preferred |

Employer Survey Results

"It is important that candidates understand
... they are required to act ethically and
professionally."



Competency Modules



4 Components:

1. Web-based, student-facing content
2. Class discussion guide
3. Online curriculum companion
4. Employer videos





Competency Modules

- Created by a team of academic faculty and manufacturing industry leaders
- Based on the US Department of Labor competency model
- Specific challenges are designed to encourage exploration of competencies



ADVANCED MANUFACTURING

Competencies for Personal & Career Success



- Interpersonal
- Integrity
- Professionalism
- Dependability and Reliability
- Teamwork
- Problem Solving
- Personal Safety and Health
- Communication

^ Interpersonal

Open-minded and emotionally intelligent. Builds strong relationships with everyone.

Challenges

Seek out opportunities where you can...

- 1 Accurately interpret the verbal and nonverbal behavior of others.
- 2 Demonstrate cultural awareness or work to combat prejudice, bias, or stereotyping.
- 3 Develop a productive relationship with someone who may be difficult to work with.
- 4 Cooperate respectfully with others who are of a different race, culture, or age, or have different abilities, gender, or sexual orientation.
- 5 Demonstrate sensitivity, flexibility, and open-mindedness when dealing with different values, beliefs, perspectives, customs, or opinions.
- 6 Build trust and credibility with others.
- 7 Help others.

^ Integrity

Accountable, ethical, and fair. Consistent in thought, word, and action.

Challenges

Seek out opportunities where you can..

1

Take responsibility for finishing goals within deadlines.

2

Do the right thing - even when no one is looking.

3

Consider how your actions could impact those around you.

4

Act in a way that respects everyone's time, including your own.

5

Consider your core values and how they impact your decision making.

6

Influence others to do the right thing.

7

Demonstrate successful work behaviors.

Teamwork

Collaborative. Builds relationships and resolves conflicts to meet team objectives.

Challenges

Seek out opportunities where you can...

1

Identify your strengths and opportunities for growth within a team environment.

2

Take responsibility for leveraging your unique strengths to accomplish team goals.

3

Encourage team members to leverage their unique strengths and perspectives to accomplish team goals.

4

Actively participate in team discussions and encourage group member participation.

5

Exercise "give and take" to resolve conflicts.

6

Deliver and accept constructive feedback in a supportive, respectful manner.

^ Communication

Skilled communicator. Listens and speaks clearly or uses alternative communication methods.

Challenges

Seek out opportunities where you can...

1

Prioritize what needs to be communicated and determine most appropriate form of delivery.

2

Tailor content, tone, and terminology of your writing for a specific audience and purpose.

3

Proofread a document to improve grammar, syntax, spelling, punctuation, dimensions, graphics, and use of jargon.

4

Use appropriate strategies to capture and retain important information.

5

Convey information clearly, correctly, and succinctly.

6

Apply active interpersonal communication skills using reflection, restatement, questioning, and clarification.

7

Understand the impacts of nonverbal communication (posture, appearance, expressions, gestures) on how a message is received; adapt your approach based on audience and situation/environment.

8

Understand another's perspectives and feelings through active listening and paying attention to nonverbal cues.

9

Determine when to talk and when to listen and reflect upon the proper balance.

Class Discussion Guide

Interpersonal Skills



Open-minded and emotionally intelligent. Builds strong relationships with everyone.

Seek opportunities where you can...

- 1 Accurately interpret the verbal and nonverbal behavior of others.
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- 3 Develop a productive relationship with someone who may be difficult to work with.
- 4 Cooperate respectfully with others who are of a different race, culture, age, gender, sexual orientation, or have different abilities.
- 5 Demonstrate sensitivity, flexibility, and open-mindedness when dealing with different values, beliefs, perspectives, customs, or opinions.
- 6 Build trust and credibility with others.
- 7 Help others.

Topics for Class Discussion

- ① Developing confidence in yourself (so others can trust you)
- ② Finding a solution/identifying solutions

How do you interpret the definition of interpersonal skills?

Emotional intelligence is the ability to understand, use, and manage your own emotions in positive ways to relieve stress, communicate effectively, empathize with others, overcome challenges, and defuse conflict. (helpguide.org)

Discuss behaviors that promote healthy teams/relationships

- Team is not too big or small
- Members are competent in their team roles.
- The team has a clear goal and all members are committed to accomplishing it.
- Each member feels comfortable sharing his/her ideas.
- Team members are willing to consider new ideas.
- The team marks project milestones and assesses progress toward the goal.
- Decisions are made via consensus.
- Dominating every conversation
- Withdrawing from the process altogether
- Acting verbally or physically aggressive
- Naysaying/blocking every idea
- Ignoring the task at hand/performing unrelated tasks



What comes to mind when you hear the word conflict?

Can conflict be avoided or at least minimized?

For most people, the word conflict is scary because of the emotional baggage it carries. Since not two people view the world the same way, disagreement is normal. One way of avoiding or resolving conflict is to listen carefully to the other speakers and calmly rephrase what they are saying, e.g. "So, I think what I hear you saying is that we should alternate days off. Is this correct?" This active listening technique can help get disagreeing parties "on the same page." Listening requires focus, remembering, and responding.



How does your attitude impact those around you?

Example: "Not my job"

Diffusion of responsibility means that no one takes ownership for specific tasks needed to accomplish the team goals, so nothing gets done.



Here's a set of inspirational teamwork [quizzes](#) with music (2:06): good as a warm-up or wrap-up for this module.

SCENARIO

Amir likes to take photos of co-workers and post them to his personal social media account along with disparaging comments about the people in the photos. He does not share the photos at work or on any company communication equipment or accounts.

Q: Can Amir be fired for these actions?



Class Discussion Guide

Problem-Solving



Disciplined. Detects warning signs, uncovers causes, assesses alternatives, and uses decision-making tools.

Seek opportunities where you can...

- 1 Identify the true nature of a problem.
- 2 Recall previously learned information that is relevant to the problem.
- 3 Locate and obtain information relevant to understanding the problem by using all available reference systems.
- 4 Take corrective action to address a problem within appropriate parameters of your role.
- 5 Evaluate the merits of potential solutions; recommend the best option.
- 6 Observe and evaluate the outcomes of implementing a solution to assess the need for alternative approaches, and identify lessons learned.
- 7 Anticipate problems by monitoring patterns and trends.

Topics for Class Discussion

- Ⓢ How many decisions do you make in a day?
- Ⓢ How do you make a decision?
- Ⓢ What is a good decision?
- Ⓢ Describe how you recently made a good decision. What was the process? (Strategies include Random, Gut Feel, Logical, and Process of Elimination.)

Problem-Solving Strategies

- Draw a diagram, look for patterns
- Make a list
- Trial and error
- Divide and conquer
- Work the problem backwards

"Every problem is an opportunity in disguise."
John Adams

Problem-Solving Methodologies/Tools

- Define the problem by writing a problem statement
- Understand the current state
- Find root cause
 - 5 Whys / Fishbone (Ishikawa Diagram)
 - 6 M's: Manpower, Method, Machine, Material, Measurement and Mother Nature
- Choose a solution
- Implement solution (one at a time)
- "Was the problem resolved?"
 - If yes: Communicate findings and train others as needed.
 - If no: Go back to the root cause tools.



What is your risk tolerance in decision making?

This will impact your decision!

"Proactive vs. Reactive"

- What does it mean to be proactive vs. reactive?
 - Proactive: Doing the upfront work to determine if a process is reliable (This takes time, effort, and resources.)
 - Reactive: Handling problems as they arise (This is the approach a lot of organizations take.)
- Most of the information gathered in a reactive state is lost. The problem will continue to arise.



What's Critical Thinking?

SCENARIO

It's the end of the month and a "hot" part is being delayed at Machine 5. The operator calls her supervisor, who calls his manager. They call in support from quality, logistics, engineering, and supply chain. They all determine the "issue" and what can be done to fix the problem. The part is corrected and shipped. The next day, all those involved in getting the part shipped are praised at the morning meeting and kudos were shared via email. A week later, Machine 5 is making bad parts again. What do you think will happen? What do you think should happen?



Online Curriculum Companion



Developing Your Capital

Participants

Badges

Competencies

Grades

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Site home

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Developing Your Capital

The purpose of this curriculum companion is to help students:

- **Develop** an **awareness** of workplace competencies
- **Understand** the **value** of workplace competencies
- **Recognize** the **importance** of how these skills shape an individual's reputation (personal brand)
- **Develop strategies** to build a personal brand
- **Understand** one's economic **value** in the workplace

Developed Using Industry Feedback

Technical skills are at the core of career and technical education. The ability to adapt curriculum and training to respond to the evolving needs of modern industry is necessary to maintain the relevancy of content and learning outcomes.

When employers are asked to identify the most essential skills necessary for success in today's workplace, they increasingly express the need for strong employability skills.

The Necessary Skills Now (NSN) Network, a National Science Foundation project, convened a group of industry leaders to give

Developing Your Capital

Workplace competencies that
complement technical skills





Defining Your “Brand”

Does your reputation align with your personal brand?
How do you manage your reputation?

Employability Skills

89% of recruiters say that when a hire doesn't work out, it usually comes down to a lack of soft skills.

<https://www.linkedin.com/business/talent/blog/talent-strategy/global-recruiting-trends>



Hear employers from the advanced manufacturing sector talk about the importance of employability skills for entry-level technicians.

Use the buttons below to sort by topic.

- All Integrity Teamwork Initiative Advice for Students Problem Solving Interpersonal Dependability and Reliability

Nikita Murphy Clip 3



Teamwork

Nikita Murphy, Project Manager, Siemens

Summary: How to work with trust a team.

Nikita Murphy Clip 2



Integrity Initiative

Nikita Murphy, Project Manager, Siemens

Summary: Soft skills such as integrity and initiative will take you the furthest.

Nikita Murphy Clip 1



Integrity

Nikita Murphy, Project Manager, Siemens

Summary: Treat each other as internal customers; build department to department relationships.

Art Cantin Clip 4



Advice for Students

Art Cantin Clip 3



Advice for Students

Art Cantin Clip 2



Integrity

Employer Videos



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- MEC 140 Syllabus Summer 2023.docx
- SUMMER 2023 Syllabus Attachment FINAL.docx

Necessary Skills Now

- Competencies for Personal & Career Success
- Kick-off Slide Deck.pptx
- Kick-off Slide Deck.pdf
- Interpersonal
- Integrity
- Professionalism
- Dependability and Reliability
- Teamwork
- Problem Solving
- Personal Safety & Health
- Communication
- Field Trip
Jul 26 | 9:25am

Marci Gale

Summer 2023 Pilot
Experiences



Problem Solving

You cannot solve problems unless you are disciplined. Discipline enables you to detect warning signs, uncover causes, assess alternatives, and use decision-making tools.

"Every problem is an opportunity in disguise." John Adams

Problem-Solving Strategies

- Draw a diagram, look for patterns
- Make a list
- Trial and error
- Divide and conquer
- Work the problem backwards

Problem-Solving Methodologies/Tools

- Define the problem by writing a problem statement
- Understand the current state
- Find root cause
- Choose a solution
- Implement solution (one at a time)
- "Was the problem resolved?"

Fishbone Diagram: Determining Cause and Effect



Fishbone Diagram Explained CS

Proactive vs Reactive

What does it mean to be proactive vs. reactive?

- Proactive: Doing the upfront work to determine if a process is reliable (This takes time, effort, and resources.)
- Reactive: Handling problems as they arise (This is the approach a lot of organizations take.)

Most of the information gathered in a reactive state is lost. The problem will continue to arise.

You must be willing to take risks in order to be reactive!





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Professionalism Skills Scenario

ⓘ This is a preview of the published version of the quiz.

Started: Oct 23 at 1:34pm

Quiz Instructions

Answer the scenario question with a minimum of 125 words but no more than 250 words. Feel free to share any similar situations you have experienced on the job or in life. If your company has a specific policy about the given scenario, please share that! There is no time limit even though it starts a timer when you click on it.



Question 1

10 pts

Marcus is allowed to take 15 minutes break every 2 hours at his job. Marcus began extending his breaks to 25 minutes. His employer issued a warning to Marcus that he can only take up to 15 minutes of personal break time. Marcus feels that 15 minutes is not enough time for a break and continues to extend his time.

Should Marcus be allowed to take extra time during his breaks if he feels they are necessary?

Edit View Insert Format Tools Table

12pt Paragraph B I U A = L = T = | D = | | | | | | | |

Discussion

1. What does industry really mean when they say students don't have "teamwork" or "communication" or "problem-solving" skills? Share examples of what this looks like on the job, for a technician.
2. How can you get employer partners to identify specific employability skill deficiencies among entry-level technicians?
3. What's been your biggest challenges or successes around developing employability skills?



Additional Resources on NSN Website



Instructional Resources

Explore a wide range of resources
and share your own.



www.NecessarySkillsNow.org

Join the Cohort!

Advanced
Manufacturing
Cohort:



Share a Resource!

Share a Resource:



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